



# 4

# SEQUENCE LISTING

<110> Rodriguez, Moses  
Miller, David J.  
Pease, Larry R.

<120> Human IgM Antibodies and Diagnostic and  
Therapeutic Uses Thereof Particularly in the Central Nervous  
System

<130> 1199-1-005CIP2

<140> 10/010,729

<141> 2001-11-13

<150> 09/730,473

<151> 2000-12-05

<150> 09/580,787

<151> 2000-05-30

<150> 09/322,862

<151> 1999-05-28

<150> 08/779,784

<151> 1997-01-07

<150> 08/692,084

<151> 1996-08-08

<150> 08/236,520

<151> 1994-04-29

<160> 80

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tgcaaggcct ctggttacac cttcacaagc tacgatataa actgggtgaa gcagaggcct 180
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gagaaattca agggcaaggc cactactgact gcagacaaat cctccagcac agcctacatg 300
cagctcagca gcctgacttc tgagaactct gcagtctatt tctgtgcaag aggggccagg 360
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<210> 2

<211> 395

<212> DNA

<213> Mus musculus

<400> 2  
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 gtgcagctga agcagtcagg acctggccta gtgcagccct cacagagcct gtccatcacc 120  
 tgcacagtct ctggtttctc attaactagc tatggtgtac actgggttcg ccagtctcca 180  
 ggaaagggtc tggagtggct gggagtgata tggagtgggt gaagcacaga ctataatgca 240  
 gctttcatat ccagactgag catcagcaag gacgcttcca agagccaagt tttctttaaa 300  
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 tgtgcaactt ctgggttcac cttcagtgat ttctacatgg agtgggtccg ccagcctcca 180  
 gggaagagac tggagtggat tgctgcaagt agaaagaaaag ctaatgatta laaaaacagag 240  
 tacagtgcac ctgtgaaggg gcggttcacc gtctccagag acacttccca aagcaccctc 300  
 taccttcaga tgaatgccct gagagatgag gacactgcc a tttattactg tgcaagagat 360  
 gcacggcagc tcgggctccc gtttgcttac tggggccaag ggactctggt cactgtctct 420  
 gca 423

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 <212> DNA  
 <213> Mus musculus

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 aacattgtaa tgacccaatc tcccaaatcc atgtccatgt cagtaggaga gagggtcacc 120  
 ttgacctgca aggccagtga gaatgtggtt acttatgttt cctgggtatca acagaaacca 180  
 gagcagctct ctaaaactgct gatatacggg gcattccaacc ggtacactgg ggtccccgat 240  
 cgcttcacag gcagtggatc tgcaacagat ttcactctga ccatcagcag tgtgcaggct 300  
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 agatgtgaca tccagatgac ccagtctcca tcctccttat ctgcctctct gggagaaaaga 120  
 gtcagtctca cttgtcgggc aagtcaggac attggttagta gcttaaaactg gcttcagcag 180  
 gaaccagatg gaactattaa acgcctgac tacgccacat ccagttttaga ttctgggtgtg 240  
 cccaaaagg tccagtggcag taggtctggg tcagattatt ctctcaccat cagcagcctt 300  
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 ggagggggga ccaagctgga aataaaacgg gctgatgctt ca 402

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gacattgtga tgaccagtc tcacaaattc atgtccactt cagtaggaga cagggtcagc 120  
atcacctgca aggccagtca ggatgtgagt actgctgtag cctggatatca acagaaacca 180  
ggacaatctc ctaaactact gatttactcg gcacccctacc ggtacactgg agtccttgat 240  
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<212> PRT  
<213> Homo sapiens

<400> 7  
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1 5 10 15  
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Ser  
20 25 30  
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45  
Ala Val Ile Ser Tyr Asp Gly Ser Arg Lys Tyr Tyr Ala Asp Ser Val  
50 55 60  
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80  
Leu Gln Met Asn Ser Leu Thr Ala Asp Asp Thr Ala Val Tyr Tyr Cys  
85 90 95  
Ala Lys Gly Val Thr Gly Ser Pro Thr Leu Asp Tyr Trp Gly Gln Gly  
100 105 110  
Thr Leu Val Thr Val Ser Ser  
115

<210> 8  
<211> 357  
<212> DNA  
<213> Homo sapiens

<400> 8  
caggtgcagc tgggtggagtc tggggggaggc gtggtccagc ctgggaggct cctgagactc 60  
tcctgtgcag cctctggatt caccttcagt agctatggca tgcactgggt ccgccaggct 120  
ccaggcaagg ggctggagtg ggtggcagtt atatcatatg atggaagtaa taaatactat 180  
gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240  
ctgcaaatga acagcctgag agctgaggac acggctgtgt attactgtgc gaaagagggtg 300  
actgctattc cctactttga ctactggggc cagggaaccc tggtcaccgt ctctca 357

<210> 9  
<211> 114  
<212> PRT  
<213> Homo sapiens

<400> 9  
Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln  
1 5 10 15  
Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn  
20 25 30

Phe Val Ser Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Arg Leu Leu  
           35                  40                  45  
 Ile Tyr Asp Ile Thr Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser  
           50                  55                  60  
 Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln  
 65                          70                  75                  80  
 Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Ser Ser Leu  
                           85                  90                  95  
 Ser Ala Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln  
           100                          105                  110  
 Pro Lys

<210> 10  
 <211> 337  
 <212> DNA  
 <213> Homo sapiens

<400> 10  
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 tcctgctctg gaagcagctc caacattggg aataattatg tatcctggta ccagcagctc 120  
 ccaggaacag cccccaaact cctcatttat gacaataata agcgaccctc agggattcct 180  
 gaccgattct ctggctccaa gtctggcacg tcagccaccc tgggcatcac cggactccag 240  
 actggggacg aggccgatta ttactgcgga acatgggata gcagcctgtg tggatttcgg 300  
 cggagggacc aagctgaccg tcctaggtca gcccaag 337

<210> 11  
 <211> 121  
 <212> PRT  
 <213> Homo sapiens

<400> 11  
 Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu  
   1                  5                  10                  15  
 Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr  
           20                  25                  30  
 Tyr Trp Ser Trp Ile Arg Gln Pro Gly Lys Gly Leu Glu Trp Ile  
           35                  40                  45  
 Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys  
           50                  55                  60  
 Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu  
 65                          70                  75                  80  
 Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala  
                           85                  90                  95  
 Arg Ser Ala Gln Gln Gln Leu Val Tyr Tyr Phe Asp Tyr Trp Gly Gln  
           100                          105                  110  
 Gly Thr Leu Val Thr Val Ser Ser Gly  
           115                          120

<210> 12  
 <211> 370  
 <212> DNA  
 <213> Homo sapiens

<400> 12

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acctgcactg tctctggtgg ctccatcagt agttactact ggagctggat ccggcagccc 120
ccaggggaagg gactggagtg gattgggtat atctattaca gtgggagcac caactacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacab ccagttctcc 240
ctgaagctga gctctgtgac cgctgcggac acggccabcg tgtattactg tgcgaggtcg 300
gcacagcagc agctggtata ctacdtttga ctactggggc caggggaaccc tggtcaccgt 360
ctcctcaggg                                     370

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<210> 13
<211> 119
<212> PRT
<213> Homo sapiens

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<400> 13
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Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
 20            25            30
Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
 35            40            45
Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50            55            60
Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
 65            70            75            80
Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
 85            90            95
Tyr Tyr Ser Thr Pro Leu Thr Phe Gly Pro Gly Thr Lys Val Asp Ile
100           105           110
Lys Arg Thr Val Ala Ala Pro
115

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<210> 14
<211> 357
<212> DNA
<213> Homo sapiens

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<400> 14
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atcaactgca agtccagcca gagtgtttta tacagctcca acaataagaa ctacttagct 120
tggtaccagc agaaaccagg acagcctcct aagctgctca tttactgggc atctaccggg 180
gaatccgggg tccctgaccg attcagtggc agcgggtctg ggacagattt cactctcacc 240
atcagcagcc tgcaggctga agatgtggca gtttattact gtcagcaata ttatagtact 300
cctctcactt tcggccctgg gaccaaagtg gatatcaaac gaactgtggc tgcacca 357

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<210> 15
<211> 112
<212> PRT
<213> Homo sapiens

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<400> 15
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 1             5             10            15
Gly Phe Ile Phe Ser Ser Tyr Gly Met His Trp Val Arg Gln Val Pro
 20            25            30
Gly Lys Gly Leu Glu Trp Val Ala Val Ile Trp Tyr Asp Gly Ser Asp
 35            40            45

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Lys Tyr Tyr Val Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp  
 50 55 60  
 Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu  
 65 70 75 80  
 Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asp Arg Ser Ser Gly Trp Tyr  
 85 90 95  
 Trp Ser Cys Asp Ser Trp Gly Gln Gly Thr Leu Val Ile Val Ser Ser  
 100 105 110

<210> 16  
 <211> 338  
 <212> DNA  
 <213> Homo sapiens

<400> 16  
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 tcagtagcta tggcatgcac tgggtccgcc aggttccagg caaggggctg gagtgggtgg 120  
 cagttatatg gtatgatgga agtgataaat actatgtaga ctccgtgaag ggccgattca 180  
 ccatctccag agacaattct aaaaacacgc tctatctgca aatgaacagc ctgagagccg 240  
 aggacacggc tgtgtattac tgtgcgagag atcgacgagc tggctggtac tggtcctgcg 300  
 actcctgggg ccaggggaacc ctggtcattg tctcctca 338

<210> 17  
 <211> 117  
 <212> PRT  
 <213> Homo sapiens

<400> 17  
 Leu Leu Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser Cys Thr Gly  
 1 5 10 15  
 Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln  
 20 25 30  
 His Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Asp Val Ser Asp Arg  
 35 40 45  
 Pro Ser Gly Val Ser Asn Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr  
 50 55 60  
 Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr  
 65 70 75 80  
 Tyr Cys Ser Ser Tyr Thr Ser Ser Ser Ser Val Val Phe Gly Gly Gly  
 85 90 95  
 Thr Lys Leu Thr Val Leu Gly Gln Pro Lys Ala Ala Pro Ser Val Thr  
 100 105 110  
 Leu Phe Pro Pro  
 115

<210> 18  
 <211> 358  
 <212> DNA  
 <213> Homo sapiens

<400> 18  
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 tgacgttggg ggttataact atgtctcctg gtaccaacag caccaggca aagccccaa 120  
 actcatgatt tatgatgtca gtgatcgcc ctcaggggtt tctaatacgt tctctggctc 180  
 caagtctggc aacacggcct ccctgaccat ctctgggctc caggctgagg acgaggctga 240

ttattactgc agctcatata caagcagcag ctctgtggta ttcggcggag ggaccaagct 300  
gaccgtccta ggtcagccca aggctgcccc ctcggtcact ctgttccccgc ctccaagg 358

<210> 19  
<211> 120  
<212> PRT  
<213> Mus musculus

<400> 19  
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1 5 10 15  
Phe Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr  
20 25 30  
Asp Leu Asn Trp Val Arg Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45  
Gly Trp Ile Tyr Pro Gly Asn Asp Asn Thr Lys Tyr Asn Glu Lys Phe  
50 55 60  
Lys Gly Leu Ala Ser Leu Thr Ala Asp Lys Ser Ser Thr Thr Ala Tyr  
65 70 75 80  
Leu His Leu Ser Ser Leu Thr Ser Glu Ser Ser Ala Val Tyr Phe Cys  
85 90 95  
Ala Arg Gly Leu Pro Arg Gly Trp Tyr Phe Asp Val Trp Gly Ala Gly  
100 105 110  
Thr Thr Val Thr Val Ser Ser Ala  
115 120

<210> 20  
<211> 360  
<212> DNA  
<213> Mus musculus

<400> 20  
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tcttgcaagg cttctgggta caccttcaca aactacgac taaactgggt gaggcagagg 120  
cctggacagg gccttgagtg gattggatgg atttatcctg gaaatgataa tactaagtac 180  
aatgagaagt tcaagggcct ggcctcactg actgcagaca agtcctccac cacagcctac 240  
ttgcattcga gcagcctgac ttctgagagc tctgcagtct atttctgtgc aagagggtta 300  
cctaggggct ggtacttcga tgtctggggc gcagggaacca cggtcaccgt ctctcagct 360

<210> 21  
<211> 101  
<212> PRT  
<213> Mus musculus

<400> 21  
Asn Ile Val Met Thr Gln Ser Pro Lys Ser Met Ser Met Ser Val Gly  
1 5 10 15  
Glu Arg Val Thr Leu Thr Cys Lys Ala Ser Glu Asn Val Val Thr Tyr  
20 25 30  
Val Ser Trp Tyr Gln Gln Lys Pro Glu Gln Ser Pro Lys Leu Leu Ile  
35 40 45  
Tyr Gly Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp Arg Phe Thr Gly  
50 55 60  
Ser Gly Ser Ala Thr Asp Phe Thr Leu Thr Ile Ser Ser Val Gln Ala  
65 70 75 80

Glu Asp Leu Ala Asp Tyr His Cys Gly Gln Gly Tyr Ser Tyr Pro Tyr  
                     85                    90                    95  
 Thr Phe Gly Gly Gly  
                     100

<210> 22  
 <211> 303  
 <212> DNA  
 <213> Mus musculus

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 gagcagtctc ctaaactgct gatatacggg gcatccaacc ggtacactgg ggtccccgat 180  
 cgcttcacag gcagtggatc tgcaacagat ttcactctga ccatcagcag tgtgcaggct 240  
 gaagaccttg cagattatca ctgtggacag gggttacagct atccgtacac gttcggaggg 300  
 ggg 303

<210> 23  
 <211> 101  
 <212> PRT  
 <213> Mus musculus

<400> 23  
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 Glu Thr Ile Thr Ile Asn Cys Arg Ala Ser Lys Ser Ile Ser Lys Tyr  
                     20                    25                    30  
 Leu Ala Trp Tyr Gln Glu Arg Pro Gly Lys Thr Asn Lys Leu Leu Ile  
                     35                    40                    45  
 Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser Arg Phe Ser Gly  
                     50                    55                    60  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro  
   65                    70                    75                    80  
 Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln His Asn Glu Tyr Pro Tyr  
                     85                    90                    95  
 Thr Phe Gly Gly Gly  
                     100

<210> 24  
 <211> 303  
 <212> DNA  
 <213> Mus musculus

<400> 24  
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 ggaaaaacta ataagcttct tatctactct ggatccactt tgcaatctgg aattccatca 180  
 aggttcagtg gcagtggatc tggtagacat ttcactctca ccatcagtag cctggagcct 240  
 gaagattttg caatgtatta ctgtcaacag cataatgaat acccgataac gttcggaggg 300  
 ggg 303

<210> 25  
 <211> 124  
 <212> PRT



<213> Homo sapiens

<400> 25

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Ile Asp Tyr
          20          25          30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
          35          40          45
Ser Ser Leu Ser Gly Asp Ser Gly Ser Ser Tyr Tyr Ala Asp Ser Val
          50          55          60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ser Thr Val Phe
65          70          75          80
Leu Gln Leu Ser Ser Leu Arg Ala Glu Asp Thr Ala Ile Tyr Tyr Cys
          85          90          95
Ala Gln Glu Thr Gly Pro Gln Arg Arg Trp Gly Gln Gly Thr Leu Val
          100          105          110
Thr Val Ser Ser Gly Ser Ala Ser Ala Pro Thr Leu
          115          120
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<210> 26

<211> 372

<212> DNA

<213> Homo sapiens

<400> 26

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ccaggaagg gactggagt ggtctcaagt cttagtgggtg atagtggtag ttcataattat 180
gcagactccg tgaagggccg attcaccatc tccagagaca attccaagag cacggtgttt 240
ctgcaactga gcagcctgag agccgaggac acggccatat attactgtgc gcaggagacc 300
gggtcccagc gtcgctgggg ccagggaacc ctggtcaccg tctcctcagg gagtgcaccc 360
gccccaaacc tt                                     372
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<210> 27

<211> 116

<212> PRT

<213> Homo sapiens

<400> 27

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 1           5           10           15
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          20          25          30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
          35          40          45
Tyr Lys Ala Phe Asn Leu Glu Ser Gly Val Pro Ser Arg Phe Arg Gly
          50          55          60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65          70          75          80
Asp Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Ser Tyr Pro Leu
          85          90          95
Thr Phe Gly Gly Gly Thr Lys Val Asp Ile Lys Arg Thr Val Ala Ala
          100          105          110
Pro Ser Val Phe
          115
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<210> 28  
<211> 348  
<212> DNA  
<213> Homo sapiens

<400> 28  
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gggaaagccc ctaaactcct gatctataag gcgtttaatt tagaaagtgg ggtcccatca 180  
aggttcagag gcagtggctc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240  
gatgattctg caacttatta ctgccagcag tatagtagtt accccctcac tttcggcgga 300  
gggaccaagg tggacattaa acgaactgtg gctgcacat ctgtcttc 348

<210> 29  
<211> 106  
<212> PRT  
<213> Homo sapiens

<400> 29  
Arg Lys Glu Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr  
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Phe Thr Gly Tyr Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly  
20 25 30  
Leu Glu Trp Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr  
35 40 45  
Ala Gln Lys Phe Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile  
50 55 60  
Ser Thr Ala Tyr Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala  
65 70 75 80  
Val Tyr Tyr Cys Ala Arg Asp Arg Ser Tyr Pro Gly Arg Asn Tyr Phe  
85 90 95  
Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr  
100 105

<210> 30  
<211> 327  
<212> DNA  
<213> Homo sapiens

<400> 30  
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accggctact atatgcactg ggtgcgacag gcccttgga aagggttga gtggatggga 120  
tgatcaacc ctaacagtgg tggcaciaac tatgcacaga agtttcaggg cagggtcacc 180  
atgaccaggg acacgtccat cagcacagcc tacatggagc tgagcaggct gagatctgac 240  
gacacggccg tgtattactg tgcgagagat cgatcgatc cggaaggaa ctactttgac 300  
tactggggcc aggaaccct ggtcacc 327

<210> 31  
<211> 101  
<212> PRT  
<213> Homo sapiens

<400> 31  
Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly

1		5		10		15									
Glu	Arg	Ala	Thr	Leu	Ser	Cys	Arg	Ala	Ser	Gln	Ser	Val	Ser	Ser	Ser
		20					25					30			
Tyr	Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Arg	Leu	Leu
		35					40					45			
Ile	Tyr	Gly	Ala	Ser	Ser	Arg	Ala	Thr	Gly	Ile	Pro	Asp	Arg	Phe	Ser
	50					55					60				
Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Arg	Leu	Glu
65					70					75				80	
Pro	Glu	Asp	Phe	Ala	Val	Tyr	Tyr	Cys	Gln	Gln	Tyr	Gly	Ser	Ser	His
			85						90				95		
Thr	Phe	Gly	Gln	Gly											
			100												

<210> 32  
 <211> 303  
 <212> DNA  
 <213> Homo sapiens

<400> 32  
 gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60  
 ctctcctgca gggccagtc gagtggttagc agcagctact tagcctggta ccagcagaaa 120  
 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180  
 gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag 240  
 cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gctctcacac ttttggccag 300  
 ggg 303

<210> 33  
 <211> 109  
 <212> PRT  
 <213> Homo sapiens

Gly	Leu	Val	Lys	Pro	Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser
1				5					10				15		
Gly	Phe	Thr	Phe	Ser	Asp	Tyr	Tyr	Met	Ser	Trp	Ile	Arg	Gln	Ala	Pro
			20				25					30			
Gly	Lys	Gly	Leu	Glu	Trp	Val	Ser	Tyr	Ile	Ser	Ser	Ser	Ser	Ser	Tyr
		35				40					45				
Thr	Asn	Tyr	Ala	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp
	50				55				60						
Asn	Ala	Lys	Asn	Ser	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu
65				70				75					80		
Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Asp	Arg	Ser	Ser	Ser	Ser	Trp
			85					90				95			
Tyr	Tyr	Tyr	Tyr	Tyr	Gly	Met	Asp	Val	Trp	Gly	Gln	Gly			
			100				105								

<210> 34  
 <211> 329  
 <212> DNA  
 <213> Homo sapiens

<400> 34  
 gaggcttggt caagcctgga gggtcctga gactctcctg tgcagcctct ggattcacct 60

tcagtgacta ctacatgagc tggatccgcc aggctccagg gaaggggctg gagtggggtt 120  
 catacattag tagtagtagt agttacacaa actacgcaga ctctgtgaag ggccgattca 180  
 ccatctccag agacaacgcc aagaactcac tgtatctgca aatgaacagc ctgagagccg 240  
 aggacacggc tgtgtattac tgtgcgagag atcggtcgag cagcagctgg tactactact 300  
 actacggtat ggacgtctgg ggccaaggg 329

<210> 35  
 <211> 102  
 <212> PRT  
 <213> Homo sapiens

<400> 35  
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
 1 5 10 15  
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr  
 20 25 30  
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile  
 35 40 45  
 Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Asn Gly  
 50 55 60  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
 65 70 75 80  
 Glu Asp Val Ala Thr Tyr Tyr Cys Gln Lys Tyr Asn Lys Cys Pro Ser  
 85 90 95  
 His Phe Arg Gly Arg Asp  
 100

<210> 36  
 <211> 306  
 <212> DNA  
 <213> Homo sapiens

<400> 36  
 gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60  
 atcacttgcc gggcgagtca gggcattagc aattatcttag cctgggtatca gcagaaacca 120  
 gggaaagttc ctaagctcct gatctatgct gcatccactt tgcaatcagg ggtcccatct 180  
 cggttcaatg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcaacct 240  
 gaagatggtg caacttatta ctgtcaaaag tataacaagt gccctctca ctttcggggg 300  
 aggac 306

<210> 37  
 <211> 105  
 <212> PRT  
 <213> Homo sapiens

<400> 37  
 Asp Ile Ala Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
 1 5 10 15  
 Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Arg Ser Val Leu Phe Ser  
 20 25 30  
 Ser Asn Asn Asn Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln  
 35 40 45  
 Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val  
 50 55 60  
 Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr  
 65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln  
85 90 95  
Tyr Tyr Ser Thr Pro Ile Thr Phe Gly  
100 105

<210> 38  
<211> 315  
<212> DNA  
<213> Homo sapiens

<400> 38  
gacatcgcg tgaccagtc tccagactcc ctggcagtgt ctctgggcga gagggccacc 60  
atcaactgca agtccagccg gagtgtttta ttcagctcca acaataacaa ctacttagct 120  
tggtaccagc agaaaccagg acagcctcct aagctactca tttactgggc atctaccgg 180  
gaatccgggg tccctgaccg attcagtggc agcgggtctg ggacagattt cactctcacc 240  
atcagcagcc tgcaggctga agatgtggca gtttattact gtcagcaata ttatagtact 300  
ccaatcacct tcggc 315

<210> 39  
<211> 101  
<212> PRT  
<213> Mus musculus

<400> 39  
Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly  
1 5 10 15  
Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Ser Thr Ala  
20 25 30  
Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile  
35 40 45  
Tyr Ser Ala Ser Tyr Arg Tyr Thr Gly Val Pro Asp Arg Phe Thr Gly  
50 55 60  
Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala  
65 70 75 80  
Glu Asp Leu Ala Val Tyr Tyr Cys Gln Gln His Tyr Thr Thr Pro Leu  
85 90 95  
Thr Phe Gly Ala Gly  
100

<210> 40  
<211> 303  
<212> DNA  
<213> Mus musculus

<400> 40  
gacatcgtaa tgacgcagtc tcacaaattc atgtccactt cagtaggaga cagggtcagc 60  
atcacctgca aggccagtca ggatgtgagt actgctgtag cctgggtatca acagaaacca 120  
gcacaatctc ctactact gatttactcg gcacccctacc ggtacactgg agtccctgat 180  
cgcttctactg gcagtggatc tgggacggat ttcactttca ccatcagcag tgtgcaggct 240  
gaagacctgg cagtttatta ctgtcagcaa cattatacta ctccgctcac gttcgggtgct 300  
ggg 303

<210> 41  
<211> 101  
<212> PRT

<213> Mus musculus

<400> 41

```
Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
 1           5           10           15
Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Ser Thr Ala
          20           25           30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile
          35           40           45
Tyr Ser Ala Ser Tyr Arg Tyr Thr Gly Val Pro Asp Arg Phe Thr Gly
 50           55           60
Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala
65           70           75           80
Glu Asp Leu Ala Val Tyr Tyr Cys Gln Gln His Tyr Thr Thr Pro Leu
          85           90           95
Thr Phe Gly Ala Gly
          100
```

<210> 42

<211> 303

<212> DNA

<213> Mus musculus

<400> 42

```
gacatcgtaa tgacgcagtc tcacaaattc atgtccactt cagtaggaga cagggtcagc 60
atcacctgca aggccagtcg ggatgtgagt actgctgtag cctgggtatca acagaaacca 120
ggacaatctc ctaaactact gatttactcg gcatacctacc ggtacactgg agtccctgat 180
cgcttcactg gcagtggatc tgggacggat ttcactttca ccatcagcag tgtgcaggct 240
gaagacctgg cagtttatta ctgtcagcaa cattatacta ctccgctcac gttcgggtgct 300
ggg                                     303
```

<210> 43

<211> 108

<212> PRT

<213> Mus musculus

<400> 43

```
Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu Ala Ala Ser Pro Gly
 1           5           10           15
Glu Thr Ile Thr Ile Asn Cys Arg Ala Ser Lys Ser Ile Ser Lys Tyr
          20           25           30
Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr Asn Lys Leu Leu Ile
          35           40           45
Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser Arg Phe Ser Gly
 50           55           60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65           70           75           80
Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln His Asn Glu Tyr Pro Tyr
          85           90           95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
          100           105
```

<210> 44

<211> 324

<212> DNA

<213> Mus musculus

<400> 44

```
gatgtccaga taaccagtc tccatcttat ctgtctgcat ctcctggaga aaccattact 60
attaattgca gggcaagtaa gagcattagc aaatatttag cctggatatca agagaaacct 120
gggaaaacta ataagcttct tatctactct ggatccactt tgcaatctgg aattccatca 180
aggttcagtg gcagtggatc tggtagagat ttcactctca ccatcagtag cctggagcct 240
gaagattttg caatgtatta ctgtcaacag cataatgaat acccgtagac gttcggaggg 300
gggaccaagc tggaaataaa acgg                                     324
```

<210> 45

<211> 108

<212> PRT

<213> Mus musculus

<400> 45

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Leu Gly
 1           5           10           15
Glu Arg Val Ser Leu Thr Cys Arg Ala Ser Gln Asp Ile Gly Ser Ser
      20           25           30
Leu Asn Trp Leu Gln Gln Glu Pro Asp Gly Thr Ile Lys Arg Leu Ile
      35           40           45
Tyr Ala Thr Ser Ser Leu Asp Ser Gly Val Pro Lys Arg Phe Ser Gly
      50           55           60
Ser Arg Ser Gly Ser Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Ser
      65           70           75           80
Glu Asp Phe Val Asp Tyr Tyr Cys Leu Gln Tyr Ala Ser Phe Pro Tyr
      85           90           95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
      100           105
```

<210> 46

<211> 324

<212> DNA

<213> Mus musculus

<400> 46

```
gacatccaga tgaccagtc tccatcctcc ttatctgcct ctctgggaga aagagtcagt 60
ctcacttgtc gggcaagtca ggacattggt agtagcttaa actggcttca gcaggaacca 120
gatggaacta ttaaagcctt gatctacgcc acatccagtt tagattctgg tgtcccaaaa 180
aggttcagtg gcagtaggtc tgggtcagat tattctctca ccatcagcag ccttgagtct 240
gaagattttg tagactatta ctgtctacaa tatgctagtt ttccgtacac gttcggaggg 300
gggaccaagc tggaaataaa acgg                                     324
```

<210> 47

<211> 107

<212> PRT

<213> Mus musculus

<400> 47

```
Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
 1           5           10           15
Glu Lys Val Thr Ile Ser Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
      20           25           30
Tyr Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Pro Trp Ile Tyr
      35           40           45
```

Arg	Thr	Ser	Asn	Leu	Ala	Ser	Gly	Val	Pro	Ala	Arg	Phe	Ser	Gly	Ser
50						55					60				
Gly	Ser	Gly	Thr	Ser	Tyr	Ser	Leu	Thr	Ile	Ser	Ser	Met	Glu	Ala	Glu
65					70					75				80	
Asp	Ala	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	His	Ser	Tyr	Pro	Leu	Thr
			85						90					95	
Phe	Gly	Ala	Gly	Thr	Lys	Leu	Glu	Leu	Lys	Arg					
			100						105						

<210> 48  
 <211> 321  
 <212> DNA  
 <213> Mus musculus

<400> 48  
 caaattgttc tcaccagtc tccagcaatc atgtctgcat ctccagggga gaaggtcacc 60  
 atatcctgca gtgccagctc aagtgttaagt tacatgtact ggtaccagca gaagccagga 120  
 tcctccccc aaccctggat ttatcgaca tccaacctgg cttctggagt ccctgctcgc 180  
 ltcagtggca gtgggtctgg gacctcttac tctctcacia tcagcagcat ggaggctgaa 240  
 gatgctgcca cttattactg ccagcagtat catagttacc cactcacgtt cgggtgctggg 300  
 accaagctgg agctgaaacg g 321

<210> 49  
 <211> 124  
 <212> PRT  
 <213> Homo sapiens

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly
1				5					10					15	
Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr
			20						25				30		
Trp	Met	Thr	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Met	Val
			35				40					45			
Ala	Asn	Ile	Lys	Lys	Asp	Gly	Ser	Glu	Lys	Ser	Tyr	Val	Asp	Ser	Val
	50					55					60				
Lys	Gly	Arg	Phe	Thr	Thr	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Ser	Leu	Tyr
65					70				75					80	
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90				95		
Ala	Arg	Pro	Asn	Cys	Gly	Gly	Asp	Cys	Tyr	Leu	Pro	Trp	Tyr	Phe	Asp
			100					105					110		
Leu	Trp	Gly	Arg	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser				
			115					120							

<210> 50  
 <211> 372  
 <212> DNA  
 <213> Homo sapiens

<400> 50  
 gaggtgcagc tgggtggagtc tgggggaggc ttggtccagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctggatt cacctttagt agctattgga tgacctgggt ccgccaggct 120  
 ccaggggaagg ggctggagtg ggtggccaac ataaagaaag atggaagtga gaaatcctat 180  
 gtggactctg tgaagggccg attcaccacc tccagagaca acgccaagaa ctcactgtat 240



ctgcaaataga acagcctgag agccgaggac acggctgtgt attactgtgc gagaccaat 300  
 tgtggtggtg actgctatatt accatgggtac ttcgatctct ggggccgtgg caccctgggc 360  
 actgtctcct ca 372

<210> 51  
 <211> 122  
 <212> PRT  
 <213> Homo sapiens

<400> 51  
 Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
 1 5 10 15  
 Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser  
 20 25 30  
 Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln  
 35 40 45  
 Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val  
 50 55 60  
 Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr  
 65 70 75 80  
 Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln  
 85 90 95  
 Tyr Tyr Asn Thr Pro Gln Ala Phe Gly Gln Gly Thr Lys Val Glu Ile  
 100 105 110  
 Lys Arg Thr Val Ala Ala Pro Ser Val Phe  
 115 120

<210> 52  
 <211> 366  
 <212> DNA  
 <213> Homo sapiens

<400> 52  
 gacatcgtga tgaccagtc tccagactcc ctggctgtgt ctctgggcga gagggccacc 60  
 atcaactgca agtccagcca gagtggtttta tacagctcca acaataagaa ctacttagct 120  
 tggtagcagc agaaaccagg acagcctcct aaactactca tttactgggc atctaccgg 180  
 gaatccgggg tccctgaccg attcagtggc agcgggtctg ggacagattt cactctcacc 240  
 atcagcagcc tgcaggctga agatgtggca gtttattact gtcagcaata ttataatact 300  
 cctcaggcgt tcggccaagg gaccaagggtg gaaatcaaac gaactgtggc tgcaccatct 360  
 gtcttc 366

<210> 53  
 <211> 78  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 53  
 actcccaagt cggctcgctt tctcttcagt gacaaacaca gacatagaac attcaccatg 60  
 ggatggagct gtatcact 78

<210> 54  
 <211> 47  
 <212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 54

actgactctc ttaattaaga ctcacctgag gagactgtga gagggtg 47

<210> 55

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 55

ttggcgcgcc aaagactcag cctggacatg atgtcctctg ctcagttc 48

<210> 56

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 56

atagtttagc ggccgcattc ttatctaaca ctctcccctg ttg 43

<210> 57

<211> 155

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 57

gactcgggtcc gccagccac tggaagtgc cgggtgtttcc attcgggtgat catcactgaa 60  
cacagaggac tcaccatgga gtttgggctg agctggggtt tcctcgttgc tcttttaaga 120  
ggtgtccagt gtcaggtgca gctggtggag tctgg 155

<210> 58

<211> 56

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 58

ccttaattaa gacctggaga ggccattctt acctgaggag acggtgacca gggttc 56

<210> 59

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 59

ctagctagcg tcctaggtca gcccaagget gcccc 36

<210> 60

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 60

atagtttagc ggccgcacct atgaacattc tgtagg 36

<210> 61

<211> 111

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 61

ctagctagcc cgaatttcgg gacaatcttc atcatgacct gctccctct cctcctcacc 60  
cttctcattc actgcacagg gtcttgggccc cagtctgtgt tgacgcagcc g 111

<210> 62

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 62

gggcagcctt gggctgagct aggacgggtca gc 32

<210> 63

<211> 393

<212> DNA

<213> Mus musculus

<400> 63

atgatgtcct ctgctcagtt ccttgggtctc ctgttgtctt gttttcaagg taccagatgt 60  
gatatccaga tgacacagac tacatcctcc ctgtctgcct ctctgggaga cagagtcacc 120  
atcagttgca gggcaagtca ggacattagc aattatttaa actggatca gcagaaacca 180  
gatggaactg ttaaaactcct gatctactac acatcaagat tacactcagg agtcccatca 240  
aggttcagtg gcagtgggtc tggaaacagat tattctctca ccattagcaa cctggagcaa 300  
gaagatattg ccacttactt ttgccaacag ggttaatacgc ttccgtggac gttcgggtgga 360  
ggcaccaagc tggaaatcaa acgggctgat gct 393

<210> 64

<211> 131  
 <212> PRT  
 <213> Mus musculus

<400> 64  
 Met Met Ser Ser Ala Gln Phe Leu Gly Leu Leu Leu Leu Cys Phe Gln  
 1 5 10 15  
 Gly Thr Arg Cys Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser  
 20 25 30  
 Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp  
 35 40 45  
 Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val  
 50 55 60  
 Lys Leu Leu Ile Tyr Tyr Thr Ser Arg Leu His Ser Gly Val Pro Ser  
 65 70 75 80  
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser  
 85 90 95  
 Asn Leu Glu Gln Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Gly Asn  
 100 105 110  
 Thr Leu Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg  
 115 120 125  
 Ala Asp Ala  
 130

<210> 65  
 <211> 429  
 <212> DNA  
 <213> Mus musculus

<400> 65  
 atgggatgga gctgtatcat cctctttttg gtagcagcag ctacaggtgt ccactcccag 60  
 gtccaactgc agcagcctgg gactgaactg gtgaagcctg gggcttcagt gaagctgtcc 120  
 tgcaaggctt ctggctacac cttcaccagc tactggatgc actgggtgaa gcagaggcct 180  
 ggacaaggcc ttgagtggat tggaaatatt aatcctagca atggtgtgtac taactacaat 240  
 gagaagttca agagcaaggc cacactgact gtagacaaat cctccagcac agcctacatg 300  
 cagctcagca gcctgacatc tgaggactct gcggtctatt attgtgcaag acgggcccct 360  
 tactacggta gtaggaactt tgactactgg ggccaaggca ccactctcac agtctcctca 420  
 gagagtcag 429

<210> 66  
 <211> 143  
 <212> PRT  
 <213> Mus musculus

<400> 66  
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Ala Ala Thr Gly  
 1 5 10 15  
 Val His Ser Gln Val Gln Leu Gln Gln Pro Gly Thr Glu Leu Val Lys  
 20 25 30  
 Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe  
 35 40 45  
 Thr Ser Tyr Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu  
 50 55 60  
 Glu Trp Ile Gly Asn Ile Asn Pro Ser Asn Gly Gly Thr Asn Tyr Asn  
 65 70 75 80  
 Glu Lys Phe Lys Ser Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser

				85					90				95		
Thr	Ala	Tyr	Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val
			100					105					110		
Tyr	Tyr	Cys	Ala	Arg	Arg	Ala	Pro	Tyr	Tyr	Gly	Ser	Arg	Asn	Phe	Asp
		115					120					125			
Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Leu	Thr	Val	Ser	Ser	Glu	Ser	Gln	
	130						135					140			

<210> 67  
 <211> 138  
 <212> PRT  
 <213> Mus musculus

<400> 67

Met	Gly	Trp	Arg	Trp	Ile	Phe	Leu	Phe	Leu	Leu	Ser	Gly	Thr	Ala	Gly
1				5					10					15	
Val	His	Cys	Gln	Val	Gln	Leu	Gln	Gln	Ser	Gly	Pro	Glu	Leu	Val	Lys
			20					25					30		
Pro	Gly	Ala	Leu	Val	Lys	Ile	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe
		35				40						45			
Thr	Ser	Tyr	Asp	Ile	Asn	Trp	Val	Lys	Gln	Arg	Pro	Gly	Gln	Gly	Leu
	50				55						60				
Glu	Trp	Ile	Gly	Trp	Ile	Tyr	Pro	Gly	Asp	Gly	Ser	Thr	Lys	Tyr	Asn
65					70				75						80
Glu	Lys	Phe	Lys	Gly	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Ser	Ser
				85					90					95	
Thr	Ala	Tyr	Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asn	Ser	Ala	Val
			100					105					110		
Tyr	Phe	Cys	Ala	Arg	Gly	Ala	Arg	Phe	Tyr	Trp	Tyr	Phe	Asp	Val	Trp
		115					120					125			
Gly	Ala	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser						
	130						135								

<210> 68  
 <211> 135  
 <212> PRT  
 <213> Mus musculus

<400> 68

Met	Ala	Val	Leu	Gly	Leu	Leu	Phe	Cys	Leu	Val	Thr	Phe	Pro	Ser	Cys
1				5					10					15	
Val	Leu	Ser	Gln	Val	Gln	Leu	Lys	Gln	Ser	Gly	Pro	Gly	Leu	Val	Gln
			20					25					30		
Pro	Ser	Gln	Ser	Leu	Ser	Ile	Thr	Cys	Thr	Val	Ser	Gly	Phe	Ser	Leu
		35				40						45			
Thr	Ser	Tyr	Gly	Val	His	Trp	Val	Arg	Gln	Ser	Pro	Gly	Lys	Gly	Leu
	50				55						60				
Glu	Trp	Leu	Gly	Val	Ile	Trp	Ser	Gly	Gly	Ser	Thr	Asp	Tyr	Asn	Ala
65					70				75						80
Ala	Phe	Ile	Ser	Arg	Leu	Ser	Ile	Ser	Lys	Asp	Asn	Ser	Lys	Ser	Gln
				85					90					95	
Val	Phe	Phe	Lys	Met	Asn	Ser	Leu	Gln	Ser	Asn	Asp	Thr	Ala	Ile	Tyr
			100					105					110		
Tyr	Cys	Ala	Arg	Asp	Cys	Gly	Ser	Arg	Gly	Asp	Tyr	Trp	Gly	Gln	Gly
		115					120					125			

Thr Ser Val Thr Val Ser Ser  
130 135

<210> 69  
<211> 143  
<212> PRT  
<213> Mus musculus

<400> 69  
Met Lys Leu Trp Leu Asn Trp Val Phe Leu Leu Thr Leu Leu His Gly  
1 5 10 15  
Ile Gln Cys Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln  
20 25 30  
Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe  
35 40 45  
Ser Asp Phe Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu  
50 55 60  
Glu Trp Ile Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu  
65 70 75 80  
Tyr Ser Ala Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser  
85 90 95  
Gln Ser Ile Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr  
100 105 110  
Ala Ile Tyr Tyr Cys Ala Arg Asp Ala Arg Gln Leu Gly Leu Pro Ala  
115 120 125  
Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala  
130 135 140

<210> 70  
<211> 128  
<212> PRT  
<213> Mus musculus

<400> 70  
Met Glu Ser Gln Thr Leu Val Phe Ile Ser Ile Leu Leu Trp Leu Tyr  
1 5 10 15  
Gly Ala Asp Gly Asn Ile Val Met Thr Gln Ser Pro Lys Ser Met Ser  
20 25 30  
Met Ser Val Gly Glu Arg Val Thr Leu Thr Cys Lys Ala Ser Glu Asn  
35 40 45  
Val Val Thr Tyr Val Ser Trp Tyr Gln Gln Lys Pro Glu Gln Ser Pro  
50 55 60  
Lys Leu Leu Ile Tyr Gly Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp  
65 70 75 80  
Arg Phe Thr Gly Ser Gly Ser Ala Thr Asp Phe Thr Leu Thr Ile Ser  
85 90 95  
Ser Val Gln Ala Glu Asp Leu Ala Asp Tyr His Cys Gly Gln Gly Tyr  
100 105 110  
Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg  
115 120 125

<210> 71  
<211> 130  
<212> PRT

<213> Mus musculus

<400> 71

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Met Asp Met Arg Ala Pro Ala Gln Ile Phe Gly Phe Leu Leu Leu Leu
 1           5           10           15
Phe Gln Gly Thr Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
      20           25           30
Leu Ser Ala Ser Leu Gly Glu Arg Val Ser Leu Thr Cys Arg Ala Ser
      35           40           45
Gln Asp Ile Gly Ser Ser Leu Asn Trp Leu Gln Gln Glu Pro Asp Gly
 50           55           60
Thr Ile Lys Arg Leu Ile Tyr Ala Thr Ser Ser Leu Asp Ser Gly Val
65           70           75           80
Pro Lys Arg Phe Ser Gly Ser Arg Ser Gly Ser Asp Tyr Ser Leu Thr
      85           90           95
Ile Ser Ser Leu Glu Ser Glu Asp Phe Val Asp Tyr Tyr Cys Leu Gln
      100           105           110
Tyr Ala Ser Ser Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
      115           120           125
Lys Arg
      130
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<210> 72

<211> 128

<212> PRT

<213> Mus musculus

<400> 72

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Met Glu Ser Gln Ile Gln Val Phe Val Phe Val Phe Leu Trp Leu Ser
 1           5           10           15
Gly Val Asp Gly Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser
      20           25           30
Thr Ser Val Gly Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp
      35           40           45
Val Ser Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro
 50           55           60
Lys Leu Leu Ile Tyr Ser Ala Ser Tyr Arg Tyr Thr Gly Val Pro Asp
65           70           75           80
Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser
      85           90           95
Ser Val Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Gln His Tyr
      100           105           110
Thr Thr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg
      115           120           125
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<210> 73

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 73

actccaagt cggtcgctt t

<210> 74  
<211> 270  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> template

<400> 74  
actcccaagt cggcccgctt tctcttcagt gacaaacaca gacatagaac attcaccatg 60  
gagtttgggc tgacctggct ttctcttggt gctatttttag aaggtgtcca gtgtgaggtg 120  
cagctgggtgg agtctggggg aggcttggtc cagcctgggg ggtccctgag actctcctgt 180  
gcagcctctg gattcacctt tagtagctat tggatgacct gggcccgcca ggctccaggg 240  
aaggggctgg agtgggtggc caacataaag 270

<210> 75  
<211> 266  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> template

<400> 75  
ctggagtggg tggccaacat aaagaaagat ggaagtgaga aatcctatgt ggactctgtg 60  
aagggccgat tcaccacctc cagagacaac gccagaact cactgtatct gcaaataaac 120  
agcctgagag ccgaggacac ggctgtgtat tactgtgcga gacccaattg tgggtggtgac 180  
tgctatttac catggtactt cgatctctgg ggcctgggca cctgggtcac tgtctcctca 240  
ggtgagtctt aattaagaga gtcagt 266

<210> 76  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 76  
actgactctc ttaattag 18

<210> 77  
<211> 105  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 5' primer with leader sequence

<400> 77  
ctagctagct caagactcag cctggacatg gtgttgacaga ccaggtctt catttctctg 60  
ttgctctgga tctctggtgc ctacggggac atcgtgatga ccag 105

<210> 78  
<211> 20  
<212> DNA



<213> Artificial Sequence

<220>

<223> 3' primer

<400> 78

gaacgcctga ggagtattat

20

<210> 79

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> 5' primer

<400> 79

ctgatgctac gatggatccg cctccaccaa gggcccatc

39

<210> 80

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> 3' primer

<400> 80

gcatgagtct gacagctgtt taccgggaga caggagagg ct

42